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# United States Patent [19]

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[54] **GRILLING APPLIANCE**

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2,028,159	1/1936	Kemp	99/391 X
2,441,190	5/1948	Fuller	99/394 X
2,821,187	1/1958	Tescula	99/390
2,975,698	3/1961	Miller	99/400 X
3,056,344	10/1962	Miller	99/390 X
3,279,350	10/1966	Kaplan	99/391 X
3,495,524	2/1970	Miles	99/389
4,129,067	12/1978	Reiland	99/391
4,627,410	12/1986	Jung	219/521 X
4,762,058	8/1988	Masel et al.	99/425
5,181,455	1/1993	Masel et al.	99/391
5,487,328	1/1996	Fujii	219/386 X

### Related U.S. Application Data

[60] Continuation-in-part of application No. 09/239,315, Jan. 29, 1999, Pat. No. 6,003,436, which is a division of application No. 08/613,231, Mar. 8, 1996, Pat. No. 5,970,851, which is a continuation-in-part of application No. PCT/US94/09968, Sep. 6, 1994.

### [30] Foreign Application Priority Data

Sep. 9, 1993 [IL] Israel ..... 106957

[51] Int. Cl.<sup>7</sup> ..... **A47J 37/08**

[52] U.S. Cl. .... **99/334; 99/385; 99/389;**  
99/391; 99/400; 99/446; 219/386; 219/521

[58] Field of Search ..... 99/326-334, 400,  
99/337, 401, 338, 403, 385-393, 444-446,  
426; 219/521, 386; 426/523

### [56] References Cited

#### U.S. PATENT DOCUMENTS

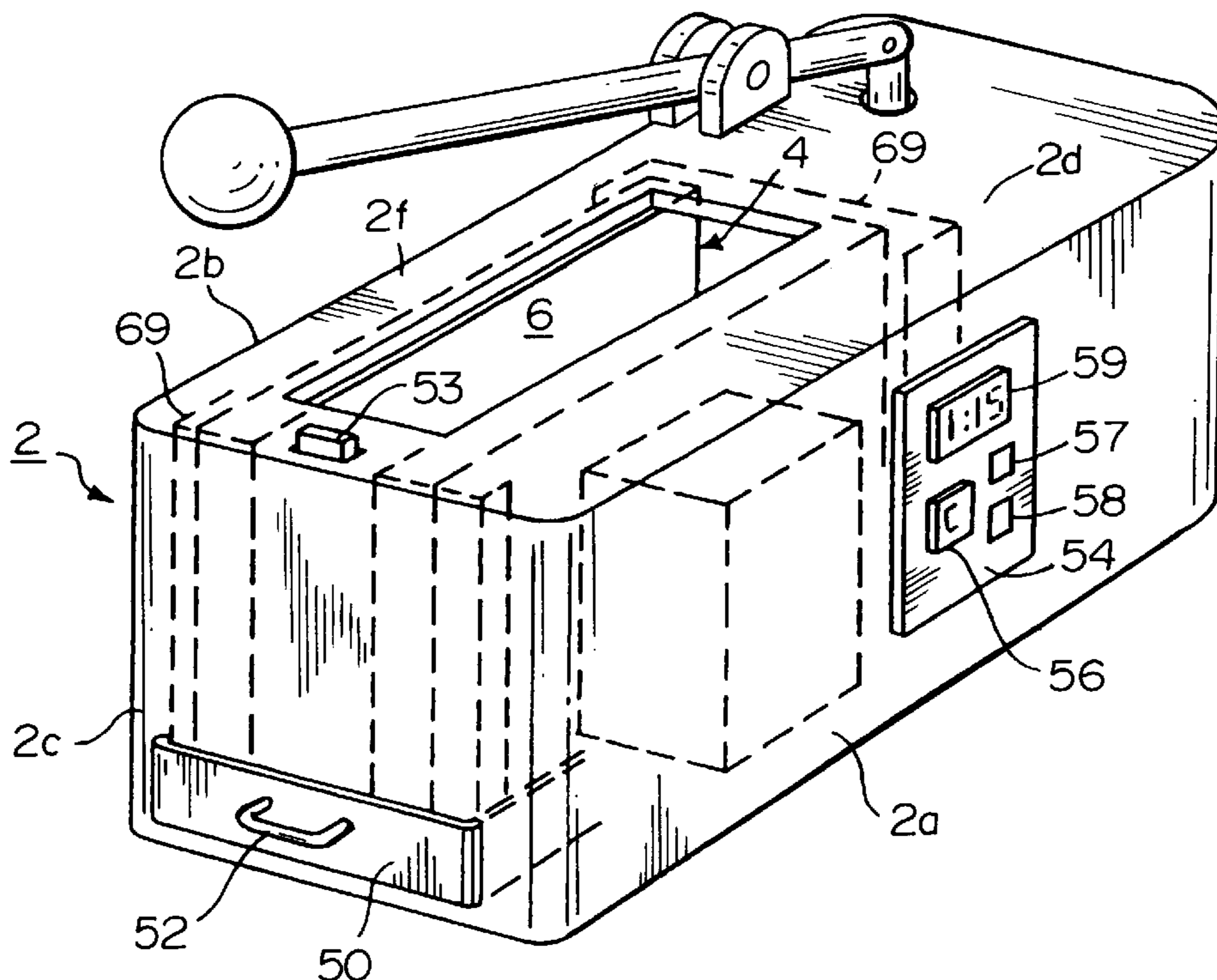
1,948,739 2/1934 Wolocott et al. .... 99/389 X

Primary Examiner—Timothy Simone

### [57] ABSTRACT

A grilling appliance includes a housing having a vertical food compartment for receiving a food article in a vertical position, a heated first grill plate mounted in a vertical position in one side of the food compartment, a heated second grill plate mounted in a vertical position in the opposite side of the food compartment, and a non-electrical drive for driving the second grill plate to an extended position towards the first grill plate, or to a retracted position away from the first grill plate. In one disclosed embodiment, the drive is pneumatically actuated, and in a second disclosed embodiment, the drive employs a screw, gear, and electromagnetic clutch mechanism. Also described are food holders particularly useful with such grilling appliance.

**20 Claims, 5 Drawing Sheets**



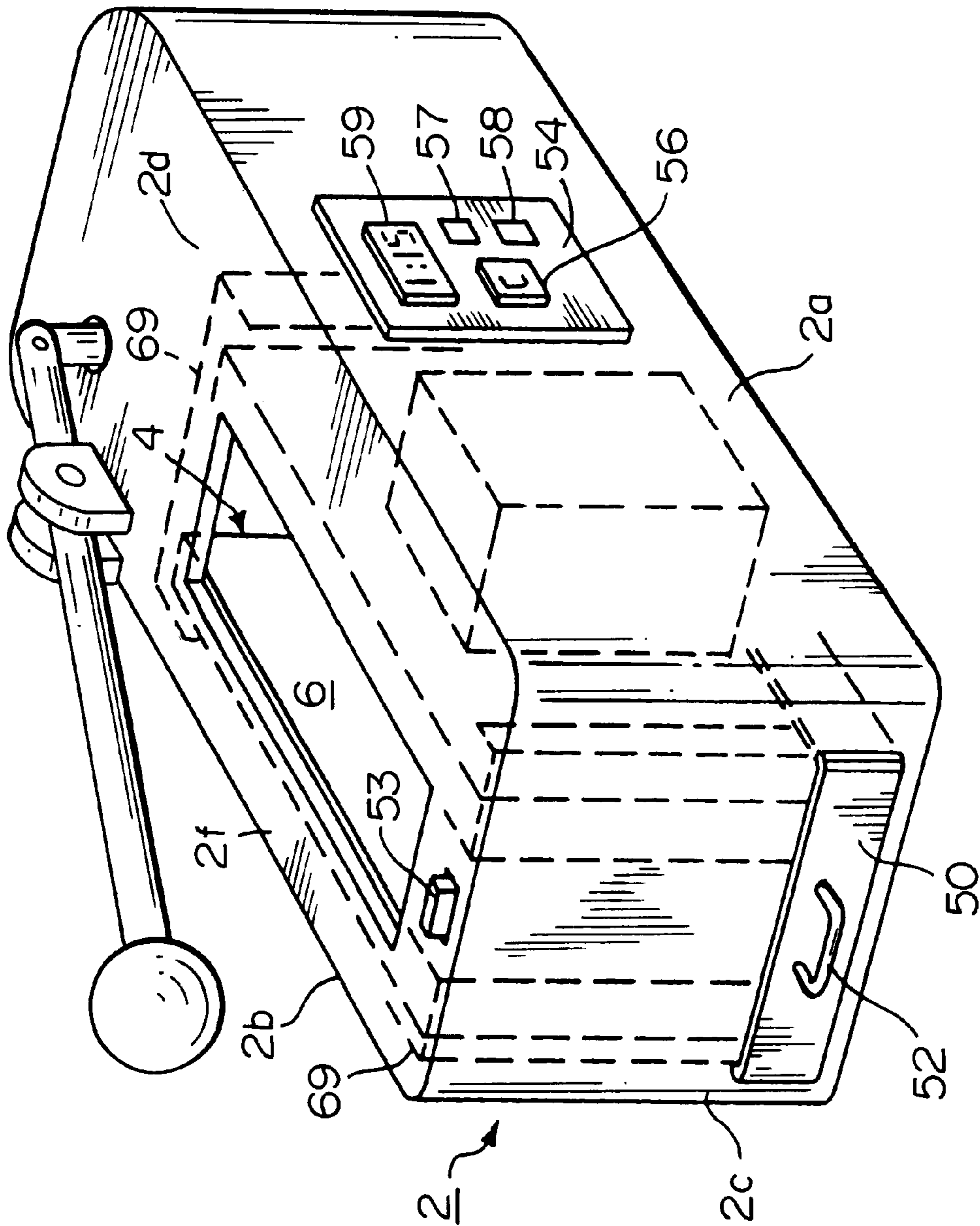


FIG. 1

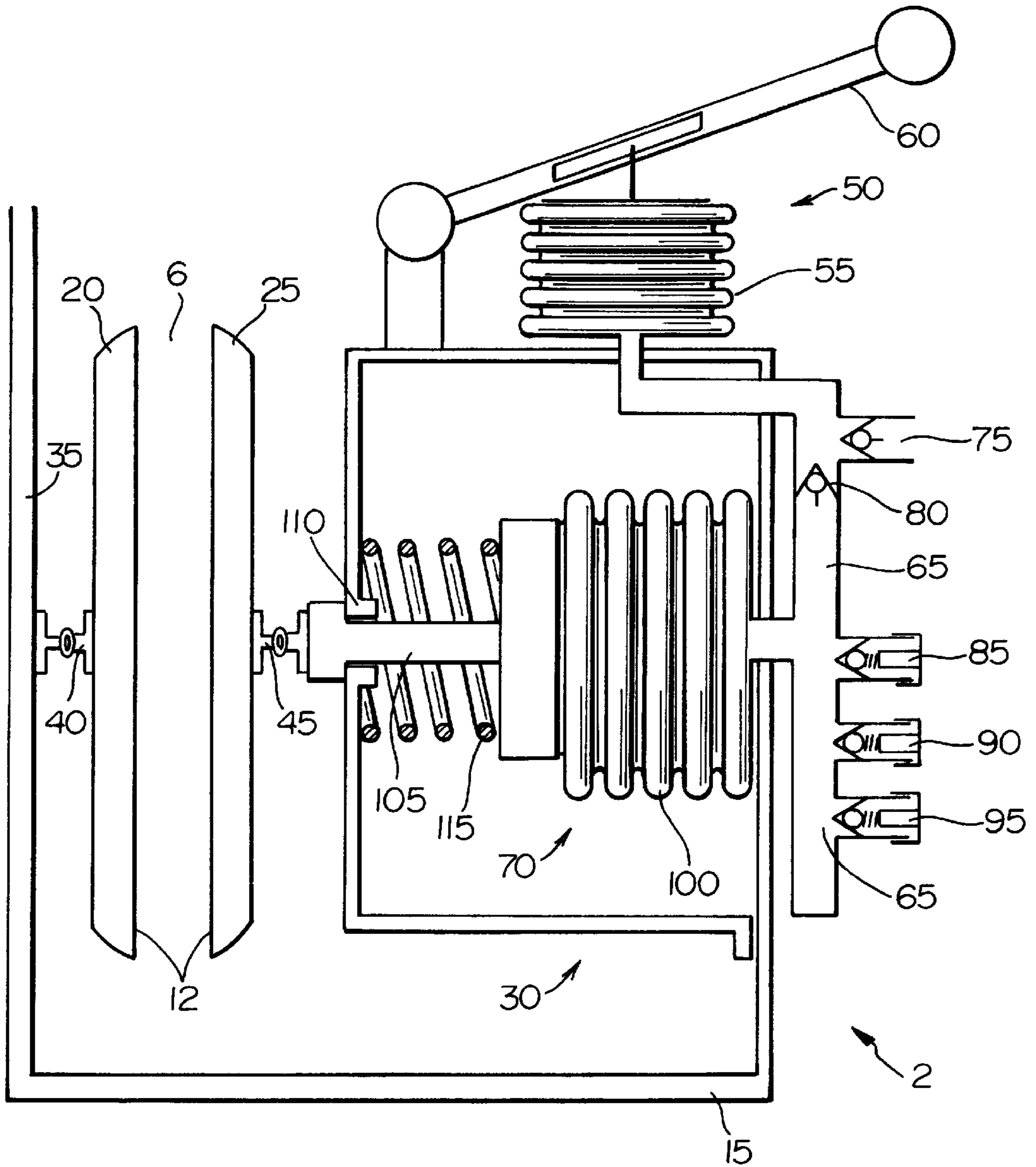


FIG. 2

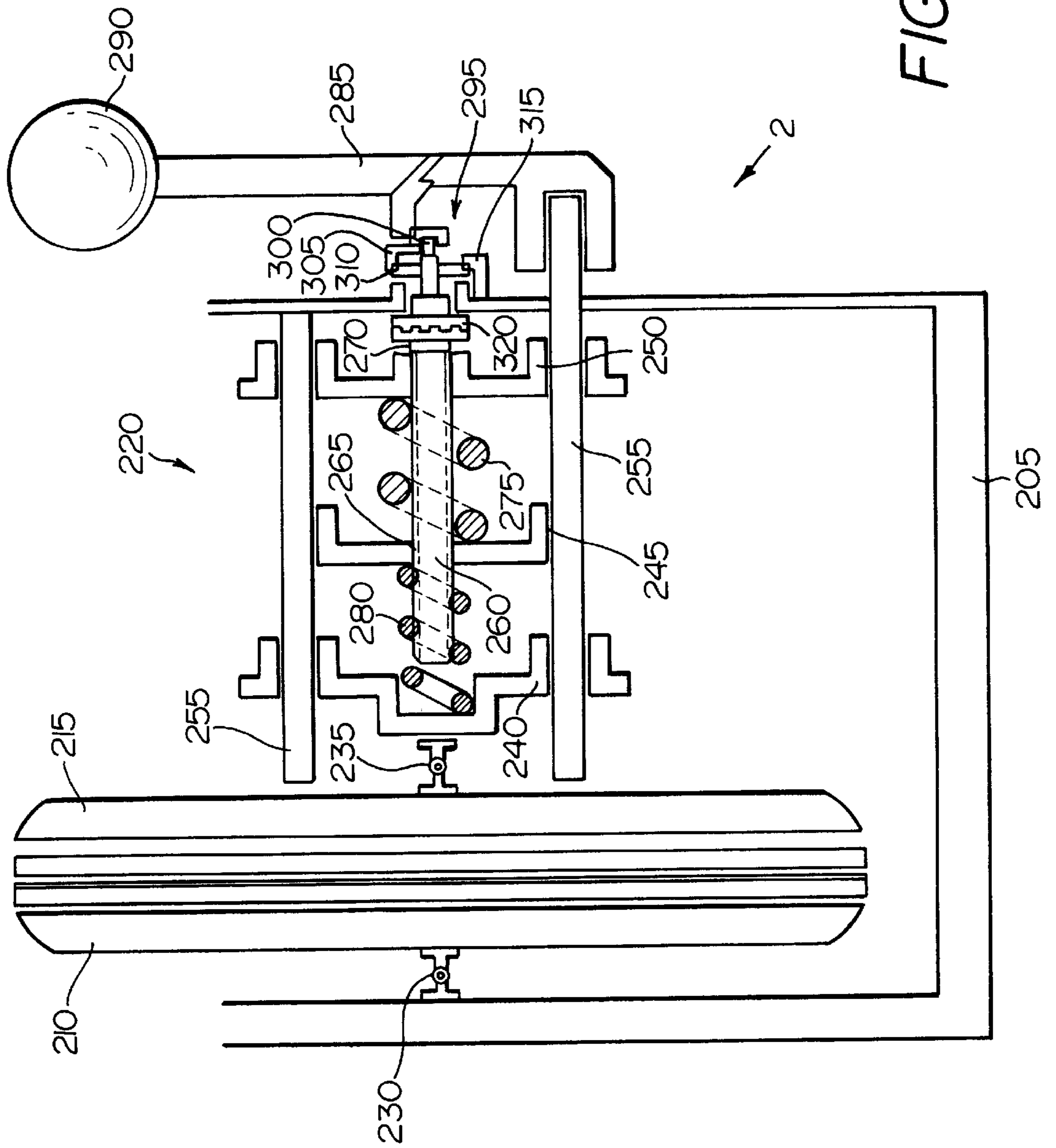


FIG. 3



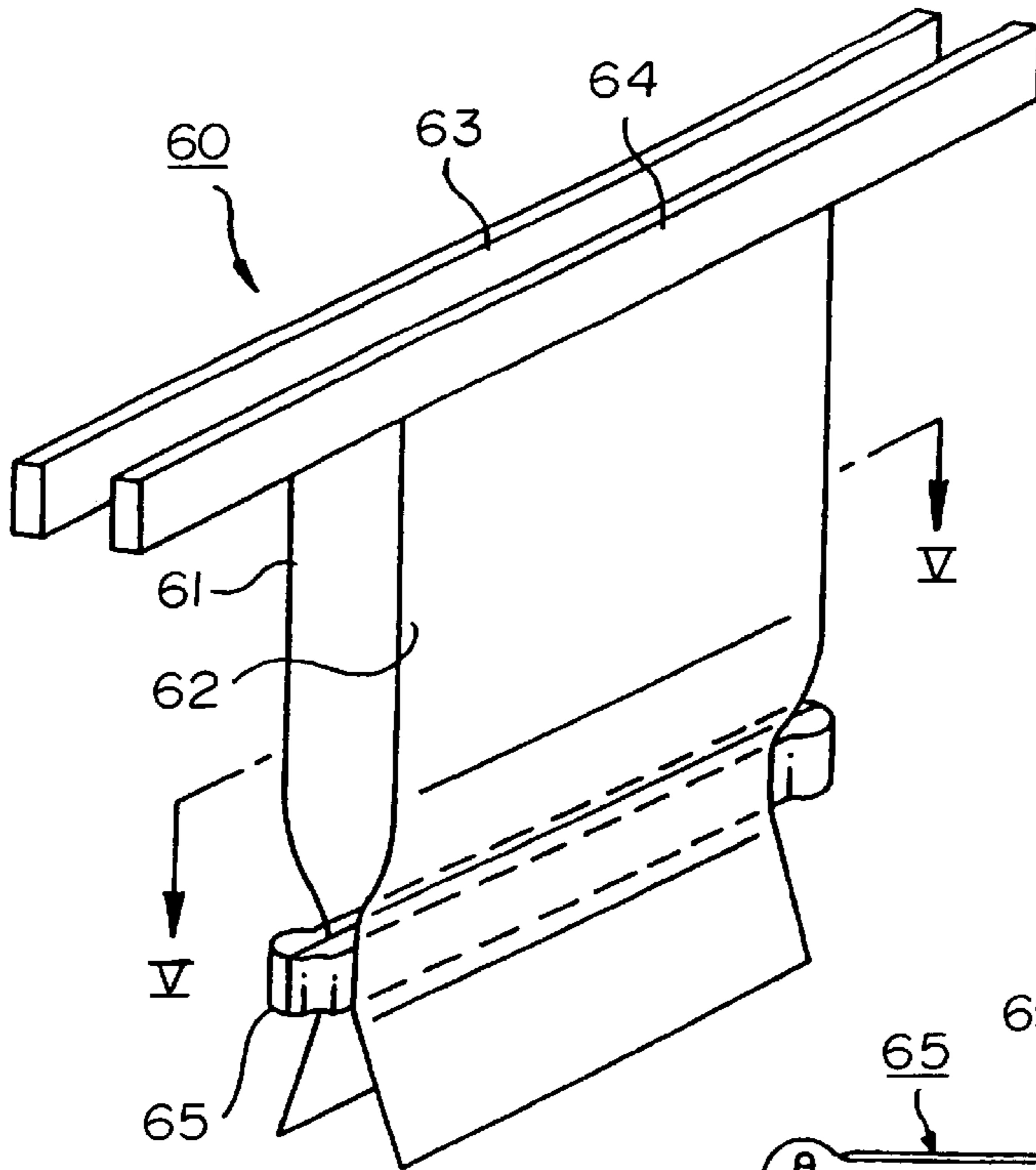


FIG. 4

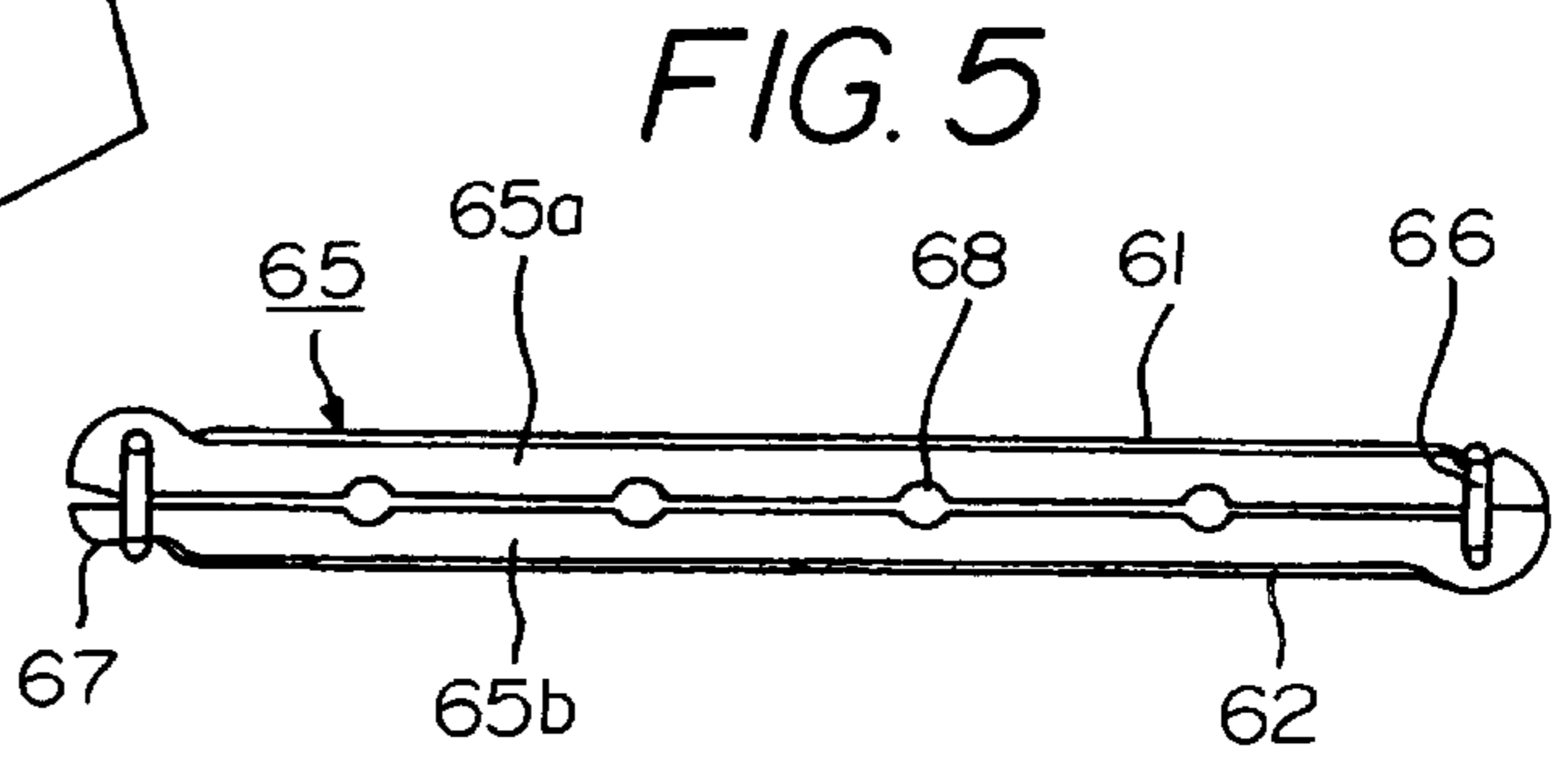


FIG. 5

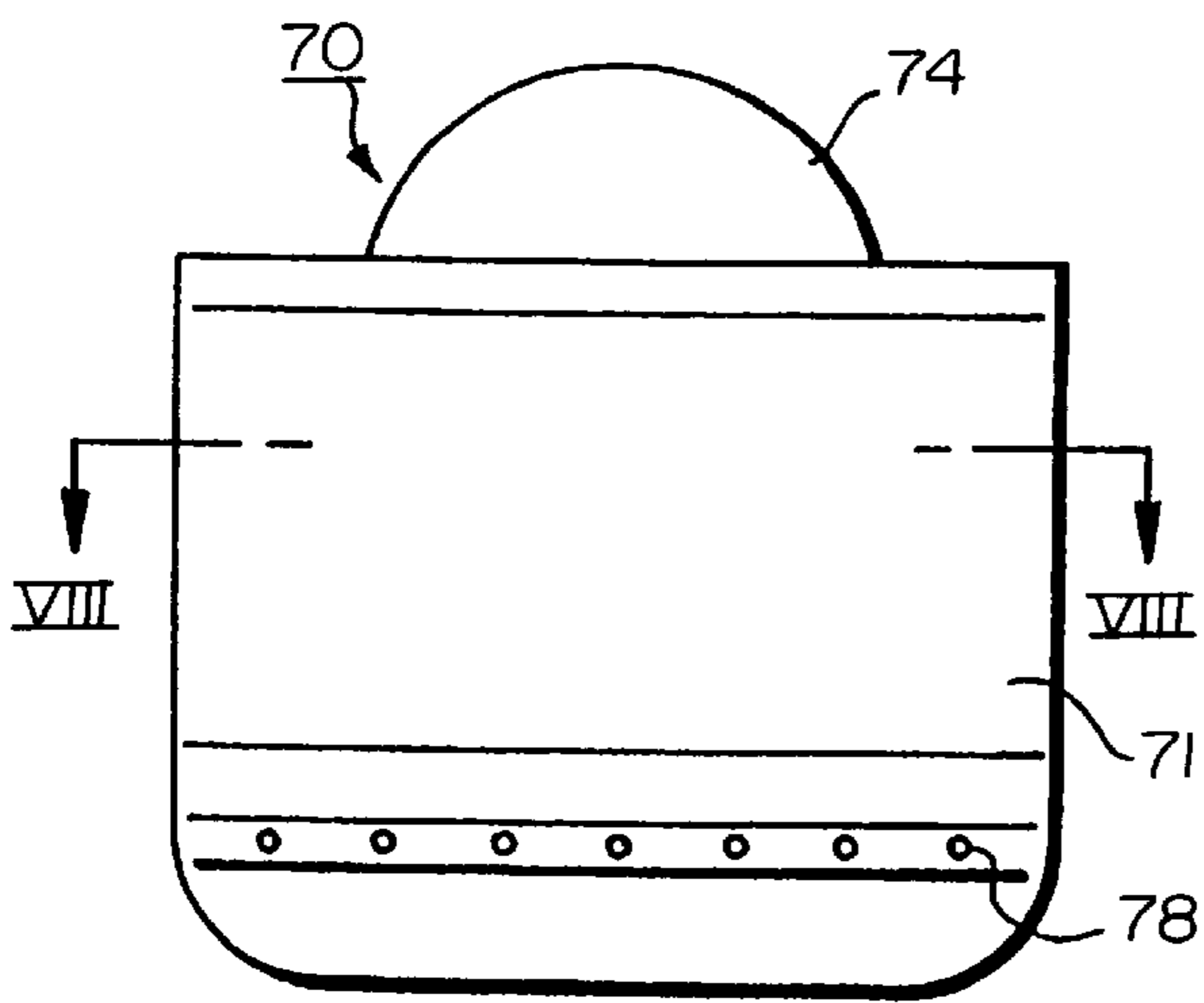


FIG. 6

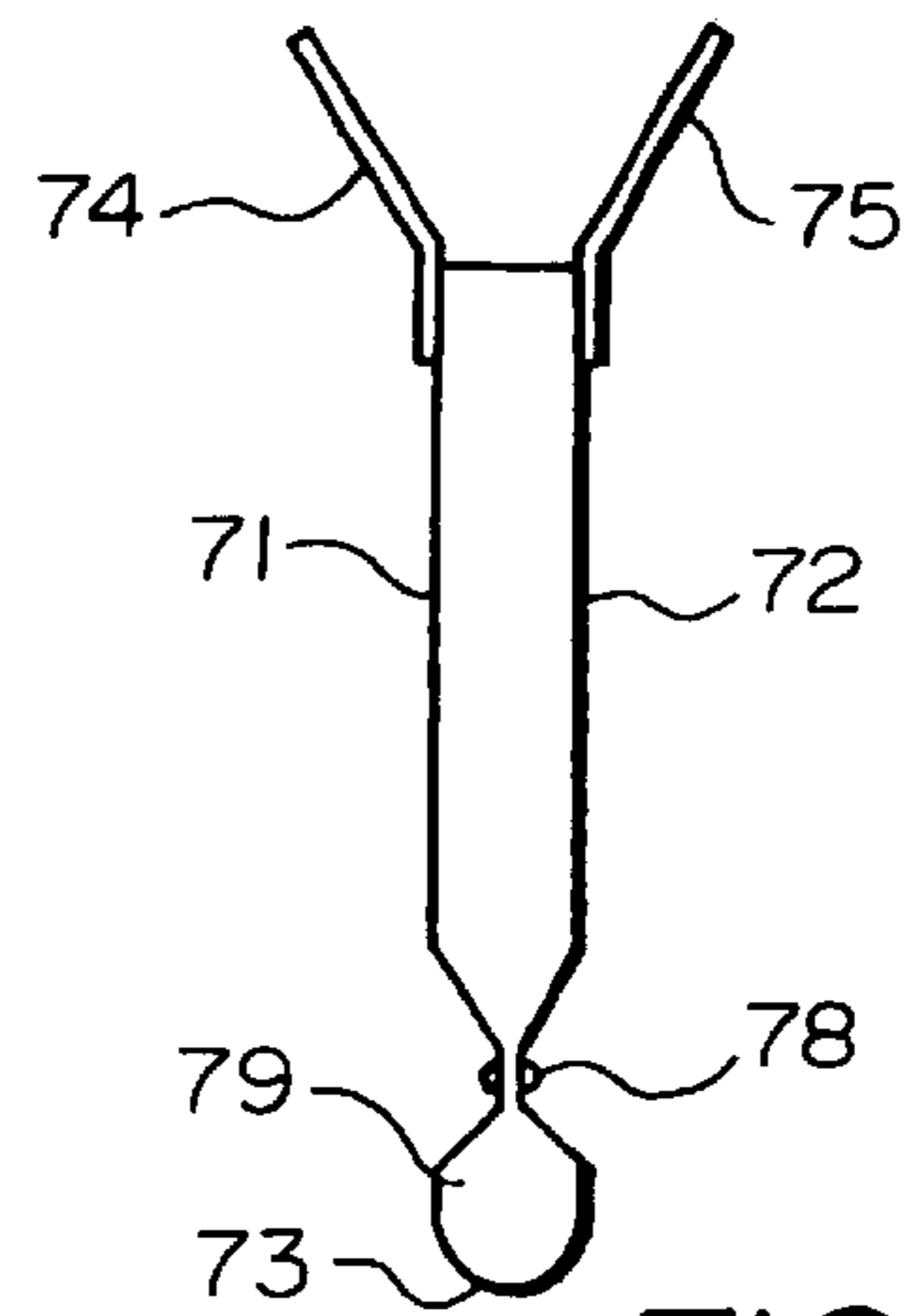


FIG. 7

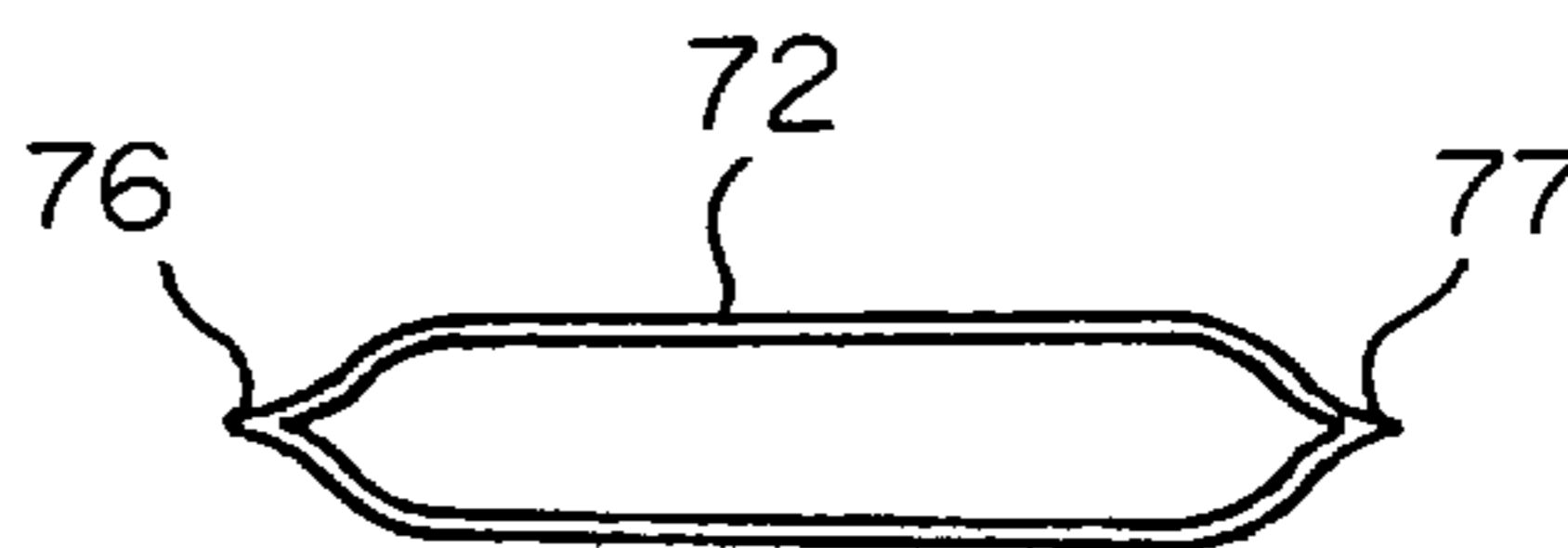


FIG. 8

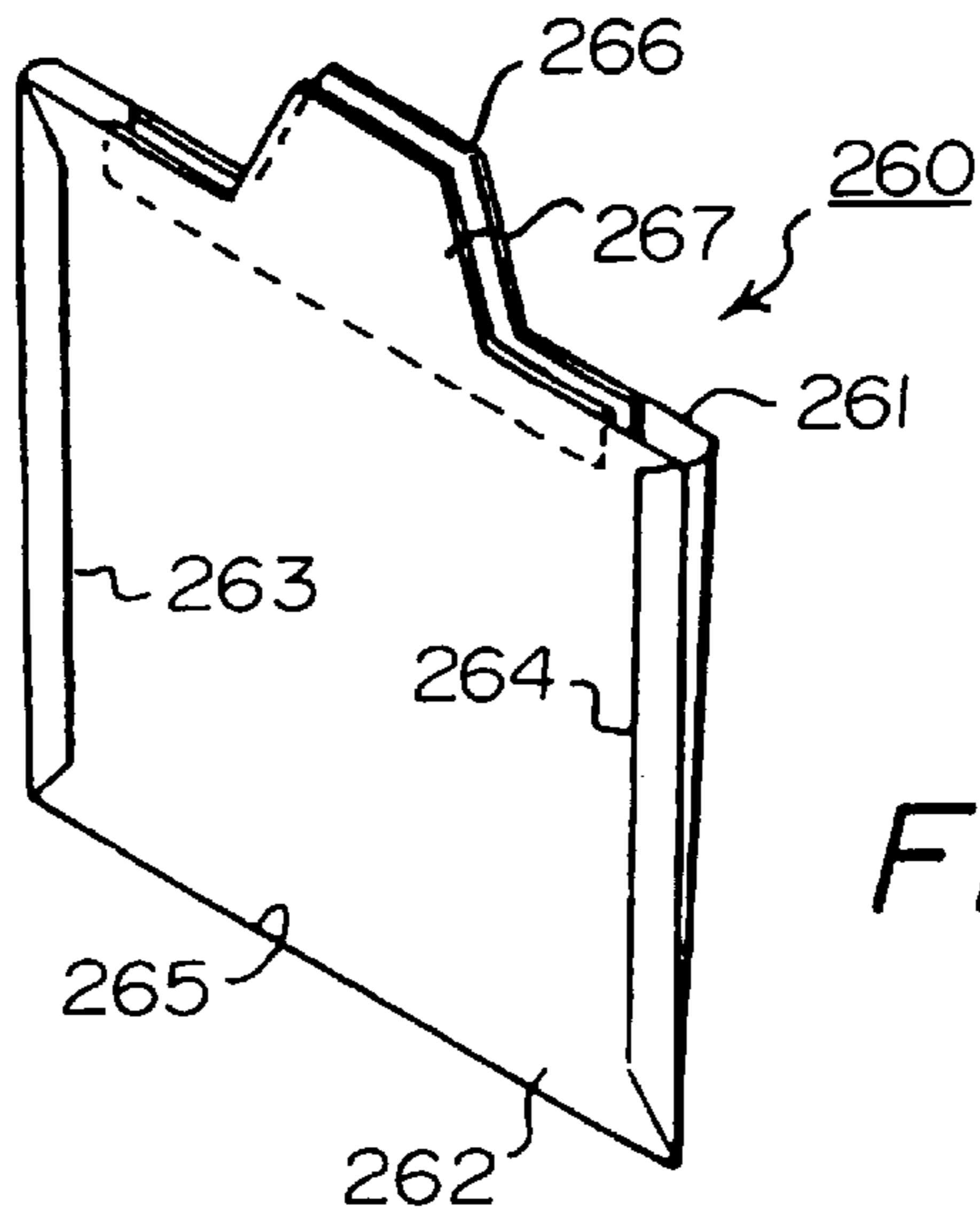


FIG. 9

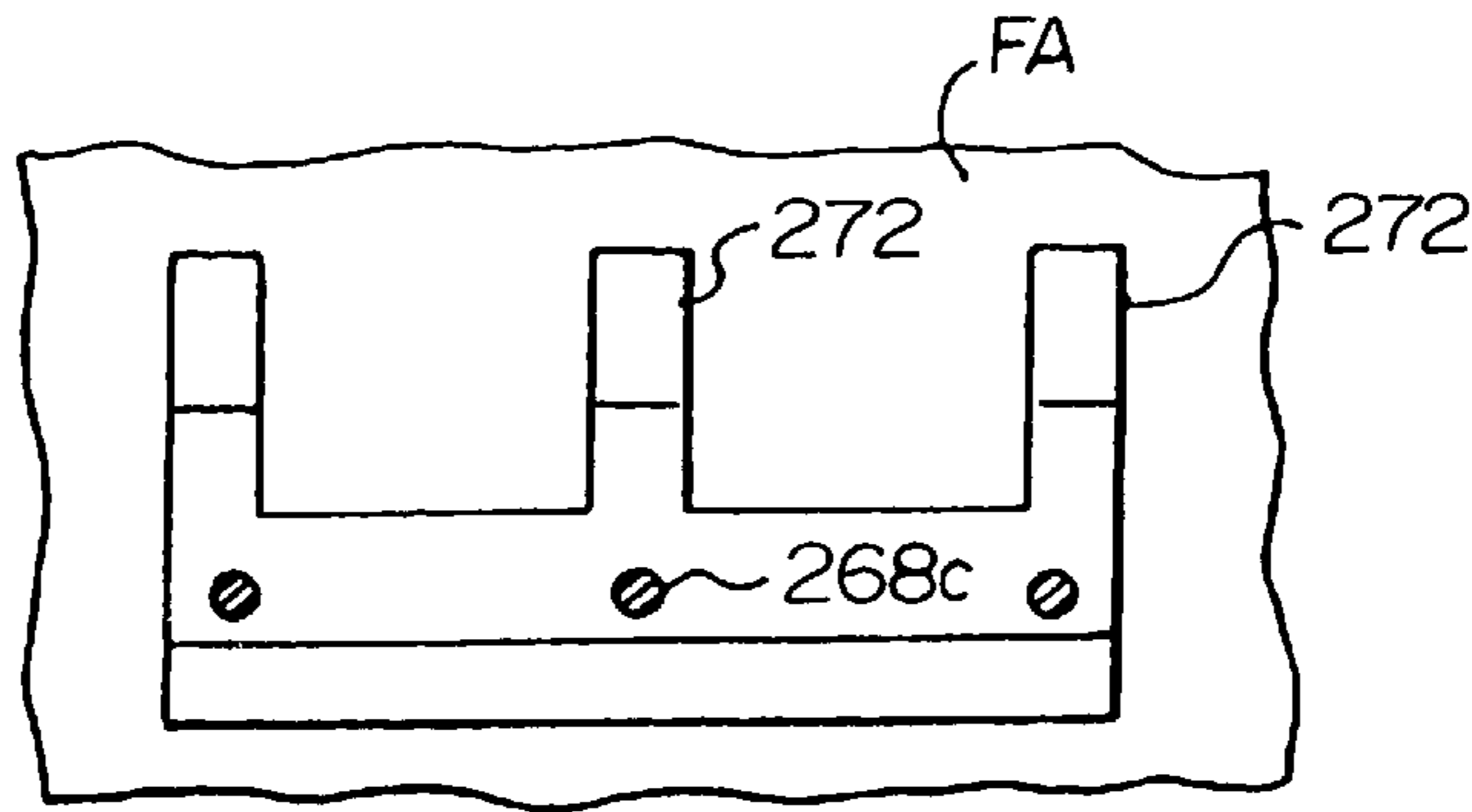


FIG. 10

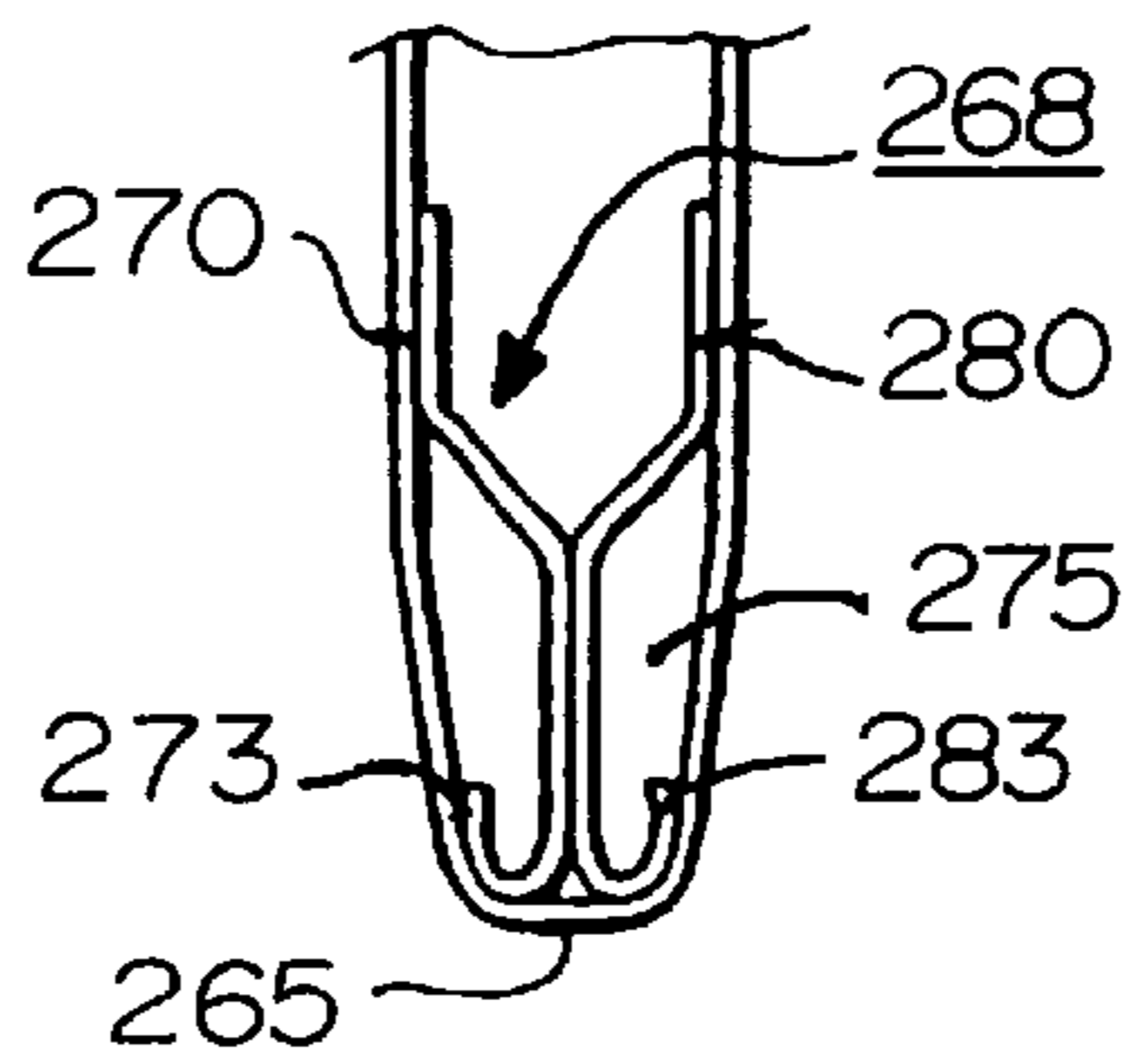


FIG. 11

## GRILLING APPLIANCE

## CLOSELY RELATED APPLICATION

This application is a continuation-in-part of patent application Ser. No. 09/239,315 filed Jan. 29, 1999, now U.S. Pat. No. 6,003,436, which is a division of patent application Ser. No. 08/613,231 filed Mar. 8, 1996, now U.S. Pat. No. 5,970,851, which is a continuation-in-part of PCT/US94/09968, filed Sep. 6, 1994 which claims priority from Israeli patent application 106957 filed Sep. 9, 1993.

## FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to grilling appliances, and particularly to an electrical grilling appliance for use in grilling meat products, such as steaks, hamburgers, and the like, in an extremely short time. The invention also describes food holders particularly useful in such grilling appliances.

A large number of electrical grilling appliances are known and described in the patent literature. The known grilling appliances generally include open grills, racks or meshes for holding the food article to be grilled. However, such grilling appliances usually require a considerably period of time to grill a steak or hamburger. Other appliances are known, such as described in our prior U.S. Pat. Nos. 4,762,058 and 5,181,455, which permit food articles to be grilled in a relatively short period of time.

A grilling appliance teaching a simplified, compact and efficient system to grill food articles in a very short period of time is disclosed in our copending U.S. patent application Ser. No. 08/631,231 filed Mar. 8, 1996, now U.S. Pat. No. 5,970,851. This appliance disclosed and claimed driving means to urge grilling plates to one another to cause the food article to be pressed therebetween. While this patent application disclosed in detail electrical motor drive means for moving the plates together, and discussed the substitution of manual drive means for the electrical drive means and broadly claimed both such means, no specific manual drive means were disclosed.

Thus, there is a need for providing a simplified yet efficient appliance that permits the grilling of food articles in the manner disclosed in the aforementioned patent application yet allows for the use of manual drive means, thereby appreciably reducing the cost of these appliances.

It is therefore an object of the present invention to provide a novel, simplified construction for a manual grilling appliance which permits food articles, such as steaks, hamburgers, and the like, to be grilled in a very short period of time.

## OBJECT AND BRIEF SUMMARY OF THE INVENTION

According to present invention, there is provided a grilling appliance, comprising: a housing including a vertical food compartment for receiving a good article in a vertical position; a heated first grill plate mounted in a vertical position in one side of the food compartment; a heated second grill plate mounted in a vertical position in the opposite side of the food compartment; and a drive for driving at least one of said grill plates to an extended position towards the other grill plate, or to a retracted position away from the other grill plate.

According to the first of two described embodiments, the drive includes a manually operated pneumatic actuated drive means for driving the movable grill plate to its extended

position. A further embodiment is described wherein a lever, a screw to drive the movable grill plate to its extended position and a spring return to drive it to its retracted position.

As will be described more particularly below, a grilling appliance of relatively simple structure may be constructed in accordance with the foregoing features to permit food articles, particularly meat products, to be grilled in a very short period of time. Thus, when, e.g., the second grill plate is forced to its extended position, it presses the food article between it and the first grill plate thereby producing high heat transfer between the two grill plates and the food article, which substantially reduces the required grilling time. Moreover, when grilling an article of greater thickness, the appliance may be designed to apply a larger pressure by the two grilling plates, thereby increasing the heat transfer to it, and making the grilling time less dependent on the thickness of the food article.

Further features and advantages of the invention will be apparent from the description below.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1 is a three-dimensional view illustrating one form of grilling appliance constructed in accordance with the present invention;

FIG. 2 diagrammatically illustrates the internal construction of the grilling appliance of FIG. 1 employing a pneumatic mechanism according to a first preferred embodiment;

FIG. 3 diagrammatically illustrates the internal construction of the grilling appliance of FIG. 1 according to a second preferred embodiment;

FIGS. 4 and 5 illustrate one type food holder for use in the grilling appliance, FIG. 5 being a sectional view along line V—V of FIG. 4;

FIGS. 6—8 illustrates another type food holder for use with the grilling appliance, FIG. 7 being a side elevational view of FIG. 6 and FIG. 8 being a sectional view along line VIII—VIII of FIG. 6;

FIG. 9 is a three-dimensional view illustrating another form of food holder that may be used;

FIG. 10 is a side elevational view of the lower portion of the food holder of FIG. 9; and

FIG. 11 is an end elevational view of the lower portion of the food holder of FIG. 10.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the Figures, the grilling appliance illustrated in the drawings comprises a housing 2 of the general configuration of, but slightly larger than, a conventional electrical toaster. The housing includes a front wall 2a, a rear wall 2b, opposed end walls 2c, 2d, a bottom wall 2e and a top wall 2f. The top wall 2f is formed with an enlarged rectangular opening 4 for introducing the food article to be grilled into a food compartment 6 within the housing.

A drip pan 50 is receivable within housing 2 to underlie the food compartment 6, and thereby to catch the drippings from the food article during the time it is being grilled. Drip pan 50 is insertable into the housing via an opening formed in the housing end wall 2c, and is provided with a handle 52 to facilitate introducing and removing it from the housing.



A microswitch **53**, at one side of opening **4** in the top wall **2f** of the housing, is depressible for energizing the electrical heaters (not shown) within the two grill plates **20** and **25** (see FIG. **2**). The front wall **2a** of the housing is provided with a control panel **54** which includes an on/off switch **56**, an up-time timer button **57**, a down-time timer button **58**, and a timer display **59** permitting the grilling time to be pre-selected and displayed.

Reference is now made to FIG. **2** which is a simplified schematic illustration of a grilling appliance **2** constructed and operative in accordance with a preferred embodiment of the present invention. For simplicity, electrical interfaces in the grilling appliance **2** are not shown in FIG. **2** since such electrical interfaces are conventional and well known in the art.

Grilling appliance **2** preferably includes housing **15**, vertically positioned grilling plates **20** and **25**, and a pneumatic mechanism **30**. A first grilling plate **20** is mounted in a vertical position on one side of the food compartment **6**, and a second grill plate **25** is mounted in a vertical position on the opposite side of the food compartment. The two grill plates **20** and **25** are similarly constructed with a metal face plate **12** facing the food compartment **6**, an internal electrical heater (not shown), and thermal insulation (not shown). Grill plate **20** is floatingly mounted to the housing end wall **2b** by horizontally-extending universal joint **40**. This floating mounting permits universal angular movement of the grill plate **20** and its Y and Z axes. Grilling plate **25** is preferably suspendedly coupled to the pneumatic mechanism **30** via a universal joint **45** and may be horizontally moved forward and backward by the pneumatic mechanism **30**.

Pneumatic mechanism **30** preferably includes an air pump unit **50** having a bellows **55** and a pump lever **60** coupled to bellows **55**. The first air pump unit **50** is preferably manually operated by a user for pumping air via a pipe **65** into a pneumatic actuator unit **70**. Pipe **65** preferably includes an air intake valve **75** and a pump valve **80** that directs air in a direction towards the actuator **70**. Additionally, pipe **65** also includes two pressure sensitive valves **85** and **90**; and a pressure release valve **95** having open and close states that are electrically controlled via the electrical interfaces (not shown) as is well known in the art.

The actuator **70** preferably can take many embodiments, such as a bellows **100** which is operative to push a piston **105** via linear bearing **110** against a retracting spring **115**. Piston **105** is preferably coupled to the grilling plate **25** via the universal joint **45** and is operative to push or pull the grilling plate **25** horizontally in a forward or backward direction respectively.

The operation of the grilling appliance **2** is now briefly described. Preferably, a user inserts a food article to be grilled (not shown) in the space **6** between the grilling plate **20** and the grilling plate **25**. The user then sets the settings on valves **85** and **90** to the grilling setting desired based on the nature of the food being grilled and the desired texture and pressure desired. The grilling plates **20** and **25** are preheated by depressing microswitch **53**. Then, the user causes contact between the grilling plates **20** and **25** and the food article by operating the pump lever **60** downwardly using mechanical force to pump air into the pipe **65**. The food item is grilled under mechanically applied pressure of force by the two grilling plates **20**, **15**.

When air is pumped into the pipe **65** by the operation of lever **60**, the pressure sensitive valves **85** and **90** preferably adjust the air pressure in the pipe **65** and thereby the pressure operated on the food article. Adjustment of the air pressure

is performed so as to restrict the maximum force applied to the food article according to predetermined criteria depending on the type of the food article. It is appreciated that typically a maximum force operating on the food article of up to 150 Newton is required, and thus the pressure sensitive valve **85** may be adjusted to maintain air pressures which provide up to 150 Newton on the food article. Conversely, the pressure sensitive valve **90** is preferably adjusted so as to maintain air pressures higher than a predetermined low air pressure threshold, wherein the low air pressure threshold may be determined, for example, so as to just hold the food article fixed between the grilling plates **20** and **25**. It is appreciated that if the bottom surface of the bellows **100** which exerts force on the piston **105** has a surface area of  $100 \text{ cm}^2$ , then air pressure required to reach a force of 150 Newton is only 0.15 bar which is typically easily accessible. As is evident, grilling plates **20** and **25** have freedom, through their respective universal joints to adopt their position relative to the shape of the food article inserted therebetween.

The grilling plates **20** and **25** are heated via the electrical interfaces and the food article may be grilled to a required texture and appearance. The required texture and appearance may be reached, for example, by using a timer **57**, **58** in the grilling appliance **2** which stops heating of the grilling plates **20** and **25** and retracts grilling plate **25** after a predetermined time period as is well known in the art.

Preferably, when heating of the grilling plates **20** and **25** is stopped, or a predetermined time period afterwards, pressure release valve **95** is electrically or electromagnetically opened so as to release air pressure in the pneumatic mechanism **30**. When air pressure is released, spring **115** retracts the grilling plate **25** away from grilling plate **20** thereby releasing the grilled food article.

Reference is now made to FIG. **3** which is a simplified schematic illustration of a grilling appliance **2** constructed and operative in accordance with another preferred embodiment of the present invention. For simplicity, electrical interfaces in the grilling appliance **2** are not shown in FIG. **3** since such electrical interfaces are conventional and well known in the art.

Grilling appliance **2** preferably includes housing **205**, vertically positioned grilling plates **210** and **215**, and a spring-based mechanism **220**. The grilling plate **210** is preferably suspendedly mounted to a wall **225** of the housing **205** via a universal joint **230**. The grilling plate **215** is preferably suspendedly coupled to the spring-based mechanism **220** via a universal joint **235** and may be horizontally moved forward and backward by the spring-based mechanism **220**.

The spring-based mechanism **220** preferably includes three plates: a front plate **240**, a middle plate **245**, and a rear plate **250**. The front plate **240** is preferably the plate which is the closest to the grilling plate **215** and is coupled to the grilling plate **215** via the universal joint **235**, whereas the rear plate **250** is the farthest from the grilling plate **215**.

Preferably, the three plates **240**, **245** and **250** slide forward or backward over two guides **255**. A screw **260** preferably passes through a hole **265** in the middle plate **245** and through a nut **270** inserted in a hole (not shown) in the rear plate **250**. The screw **260** also passes through a first spring **275** located between the middle plate **245** and the rear plate **250**, and through a second spring **280** located between the middle plate **245** and the front plate **240**. Preferably, the first spring **275** has a higher tension constant than the second spring **280**.



A lever **285** having a handle **290** with an internal gear is used to rotate the screw **260**. The internal gear of the handle **290** is preferably engaged with a gear mechanism **295** and is operative to rotate at least one gear wheel **300** within the gear mechanism **295**. The gear wheel **300** preferably has a latch **305** that is engaged with a ratchet wheel **310**. It is appreciated that the ratchet wheel **310** is preferably restricted from back rotation by a stationary latch **315**. Preferably, an electromagnetic clutch **320** controlled via the electrical interfaces (not shown) clutches gear wheel **300** and the screw **260** so as to enable rotation of the screw **260** together with the gear wheel **300** in response to rotation of the lever **285**.

The operation of the grilling appliance **2** is now briefly described. Preferably, a user inserts a food article to be grilled (not shown) in the space **6** between the grilling plate **210** and the grilling plate **215**. Then, the user rotates the lever **285** using mechanical force in order to force the grilling plates **210** and **215** to contact and press the food article.

The electromagnetic clutch **320** clutches gear wheel **300** to the screw **260** thereby enabling rotation of the screw **260** towards grill plate **215**. Rotation of the screw **260** moves the plates **240**, **245** and **250** and the grilling plate **215** forward towards the grilling plate **210**, thereby causing contact between the grilling plates **210** and **215** and the food article. As is evident, grilling plates **215** and **210** have freedom, through their respective universal joints to adopt their position relative to the shape of the food article inserted therebetween. It is appreciated that the rotation of the screw **260** is made through the nut **270** and is enabled in one direction only by the ratchet wheel **310** that is restricted from back rotation by the stationary latch **315**.

If grilling of the food article requires additional pressing of the food article between the grilling plates **210** and **215**, the user may further rotate the lever **285** thereby compressing the second spring **280**. When the second spring **280** is fully compressed and the user continues to rotate the lever **285**, the first spring **275** compresses until a required pressure against the food article is reached. It is appreciated that since the first spring **275** has a higher tension constant than the second spring **280**, pressure on the food article may be adjusted to a required value by either compressing the second spring **280** or the two springs **275** and **280**.

Preferably, the grilling plates **210** and **215** are preheated via the electrical interfaces, and the food article may be grilled to a required texture and appearance. The required texture and appearance may be reached, for example, by using a timer **57,58** in the grilling appliance **2** which stops heating of the grilling plates **210** and **215** after a predetermined time period as is well known in the art.

When the timer **57, 58** gives the command to cease the heating of the grilling plates **210** and **215** is also electrically disconnects the electromagnetic clutch **320** via the electrical interfaces. Clutch **320** thereupon disconnects the gear wheel **300** from the screw. When the electromagnetic clutch **320** is released, springs **275, 280** cause backward rotation of the screw **260**. This causes the grilling plate **215**, together with the plates **240, 245** and **250**, to be pulled away from the food article, thereby releasing it.

The magnitude of the force applied by grill plate **215** against the food article when the grill plate is in its extended position will be larger when relatively thick food articles are being grilled than when thinner food articles are being grilled. This accelerates the grilling of relatively thick food articles, thereby making the grilling time less dependent on the thickness of the food articles being grilled.

FIGS. **4** and **5** illustrate one form of food holder **60** which may be used with the grilling appliance for holding the food articles within the grilling compartment **6** of the appliance **2**. Food holder **60** includes a pair of flexible panels **61, 62** joined at their tops to a pair of handles **63, 64** and joined at their bottoms by clamping member **65**. The sides of the two flexible panels **61, 62** are open so that the two panels may conveniently receive a food article (e.g., steak or hamburger) to be grilled. Clamp **65**, which supports the food article between the two panels **61, 62**, includes two jaws **65a, 65b** pivotally mounted at one end by a claps **66** or the like, and openable at the opposite end by a reasonable clasp **67**. The outer faces of the two jaws **65a, 65b** are bonded to the inner faces of the two flexible panels **61,62**. The inner faces of the two jaws are formed with spaced recesses **68** defining drain openings to permit draining of liquids therethrough to the drip pan **50**.

The flexible panels **61, 62** may be made of a heat resistant, stick-resistance plastic, such as "Teflon" (Reg. TM) or of a flexible metal sheet material (e.g., aluminum) coated with such a heat-resistance, stick-resistant plastic. The dimensions of the flexible panel **61, 62** are larger than the dimensions of the two grill plates (**20,25**, or **210,215**), whereby they always completely cover them and keep them relatively clean. The overall thickness of the clamping member **65** is less than that of the food article to be held by the holder **60** so that the flexible panels **61, 62** better conform to the outer shape of the food article. A pair of removable splash guards **69** (FIG. **1**) straddle the ends of the two grill plates (**20,25** or **210,215**) on opposite sides of the food compartment **6**.

The manner of using the grilling appliance, including the food holder of FIGS. **4** and **5**, will be apparent from the above description. Thus, the movable grill plate **10** is initially in its retracted position, such as shown in FIG. **2**, with respect to the food compartment **6**. The food article (e.g., a steak or hamburger) to be grilled is placed between the two flexible panels **61, 62** of the food holder **60**, and the food holder is then introduced into the food compartment **6**. The food article is suspended in the food compartment by the two handles **63, 64** engaging the outer surfaces of the housing top wall **2f** on opposite sides of the opening **4**. The microswitch **53** is actuated by one of the handles to energize the electrical heaters **14** within the grill plates **20,25**.

As grill plate **25** presses the food article against grill plate **20**, grill plate **20** is permitted to move about all its three orthogonal axes by virtue of its floating mounting (universal joint **40**) to the housing; and grill plate **25** is permitted to move about its two orthogonal axes by virtue of its universal joint **45**. Grill plates **20** and **25** are thus free to move to conform to the surface of the article being grilled within the food holder **60** as these grill plates apply pressure to the food article.

The firm pressure applied by the grill plates **20** and **25** against the food article being grilled provided good heat transfer from the grill plates to the food article, thereby speeding up the grilling process.

FIGS. **6-8** illustrate a one-time use food holder to be disposed after a single use. In this case, a single sheet is folded at a midportion to define a pair of flexible panels **71, 72** joined at their bottoms **73**. The upper ends of the two sheets may be stiffened with cardboard strips to define handles **74, 75** which project outwardly of the appliance housing **2** when the food holder, including the food article held thereby, is inserted through opening **4** into the food compartment **6**. In this case, the opposite sides of the flexible panels **71, 72** are joined together, as shown at **76** and **77** in



FIG. 8, to produce a pocket for receiving the food article. This pocket is partially closed by a plurality of clips 78 extending through the two panels 71, 72, or by spots of adhesive or spots welds, adjacent the folded bottom 73, to define another compartment 79 for receiving the drippings

FIGS. 9–11 illustrate another construction of multiple-use food holder, generally designated 260, including two flexible panels 261, 262, preferably of a heat-resistant, stick-resistant plastic sheet, such as “Teflon”. The rear panel 261 may be thicker (e.g., 0.5 mm) than the front panel 262 (e.g., 0.1 mm), and may be bonded to the front panel by ultrasonic welding along its folded-over ends 263, 264, and also along its bottom 265. The two panels 261, 262 are bonded at their upper ends to handles 266, 267 of heat resistant plastic or metal.

The food holder illustrated in FIGS. 9–11 further includes a space member, generally designated 266 for supporting the food article FA (e.g., hamburger, steak, etc) within the food holder but spaced from its bottom 265 to permit the drippings to accumulate in the bottom. Thus, spacer member 268 includes a U-shaped socket at its lower end engageable within, and spacing the food article FA above, the bottom of the food holder.

Space member 268 is preferably made of two stainless strips 270, 280, joined together at a juncture by contact welding points 268c. Each strip is formed with a plurality of upstanding fingers 272 at its upper end which together define the U-shaped socket for receiving the food article. The lower end of each strip is formed with a semi-cylindrical curvature 273, 283 which together define the curved leg engageable with the bottom of the food holder for spacing the food article above the bottom. This space serves as a compartment 275 for receiving drippings from the food article as it is being grilled.

While the invention has been described with respect to several preferred embodiments, it will be appreciated that it is set forth merely for purposes of example, and that many variations may be made. For example, instead of a bellows 100 in the embodiment of FIG. 2, a cylinder coupled to the piston may be employed. Many other variations, modifications and applications of the invention will be apparent.

We claim:

1. A grilling appliance, comprising:
  - a housing including a vertical food compartment for receiving a good article in a vertical position;
  - a heated first grill plate mounted in a vertical position in one side of the food compartment;
  - a heated second grill plate mounted in a vertical position in the opposite side of the food compartment;
  - and a manual drive for driving at least one of said grill plates to an extended position towards the other grill plate, and a spring for urging at least one of said first grill plate or second grill plate to a retracted position away from the other grill plate.
2. The appliance according to claim 1, wherein each of said grill plates includes an electrical heater enclosed within the respective grill plate.
3. The appliance according to claim 2, wherein at least one of said first grill plate and said second grill plate is floatingly mounted by a universal joint.
4. The appliance according to claim 3, wherein said first grill plate is floatingly mounted by a universal joint to a wall of the housing.
5. The appliance according to claim 4, wherein said manual drive comprises a pneumatically actuated drive.

6. The appliance according to claim 5, wherein said pneumatically actuated drive comprises:

- (a) a pneumatic linear actuator;
- (b) an pump unit for pumping a fluid into said pneumatic linear actuator;
- (c) a piston coupled at one end to said pneumatic linear actuator;
- (d) a universal joint suspendingly coupling said second grill plate to said piston at the other end thereof; and
- (e) a spring normally urging said second grill plate away from said first grill plate;

said pneumatic linear actuator operative to extend said second grill plate towards said first grill plate when fluid is forced from said pump unit into said pneumatic linear actuator and move said piston against the force of said spring.

7. The appliance according to claim 6, further including adjustable pressure sensitive valve means for adjusting the pressure applied to said pneumatic linear actuator.

8. The appliance according to claim 7, further including lever means for manually actuating said pump.

9. The appliance according to claim 8, further including a pressure release valve, and timing means for releasing the pressure applied by said pneumatic linear actuator after the desired cooking time has elapsed, permitting the release of fluid from said pneumatic linear actuator through said pressure release valve, thereby allowing said spring to retract said second grill plate away from said first grill plate.

10. The appliance according to claim 9, wherein said pneumatic linear actuator comprises at least one bellows, and wherein said fluid is air.

11. The appliance according to claim 4, further including

- (a) guide means;
- (b) at least a first plate and second plate slidable within said guide means; and
- (c) a universal joint for suspendedly coupling said second grill plate to said first plate.

12. The appliance according to claim 11, further including a rotatable screw passing through a hole in said second plate;

a lever;

a gear mechanism engageable by said lever, said gear mechanism containing a gear wheel rotatable when said lever is rotated; and

an electromagnetic clutch clutching said gear wheel to said rotatable screw, whereby when said lever is rotated, said screw is rotated to cause said first plate to force said second grill plate against a food article located between said first grill plate and said second grill plate.

13. The appliance according to claim 12, further including a first spring located between said second plate and said first plate for normally urging said second grill plate away from said first grill plate, said first spring being compressed to apply pressure on said first plate upon rotation of said lever.

14. The appliance according to claim 13, further including a third plate slidable within said guide means, said screw passing through said third plate, and a second spring located between said second plate and said third plate, said second spring having a higher tension constant than said first spring.

15. The appliance according to claim 14, further including timing means for releasing said electromagnetic clutch, permitting said screw to rotate backwardly by the force of said first spring and said second spring, whereby said first plate and said second plate and said third plate and said

second grill plate are pulled away from said first grill plate to release the food located between said first grill plate and said second grill plate.

**16.** The appliance according to claim **4**, wherein said housing includes an opening in a top wall thereof for introducing the food articles into said food compartment, and said appliance further includes a food holder for holding a food article introduceable through said opening into the food compartment.

**17.** The appliance according to claim **16**, wherein said food holder comprises a pair of flexible panels joined at their tops to the pair of handles and joined together at their bottoms for holding the food article between the flexible panels; said pair of handles being engageable with the outer surface of the housing top wall to support the food holder and the food article held thereby in suspension in said food compartment.

**18.** The appliance according to claim **17**, wherein the pair of flexible panels are joined at their bottoms by a clamping member formed with a plurality of drain openings to permit

draining of liquid therethrough; said clamping member comprising a pair of openable and closable jaws extending across the pair of flexible panels and joined to their inner faces.

**19.** The appliance according to claim **17**, wherein said pair of flexible panels are constituted of a sheet defining a first pocket for receiving the food article, and a second pocket below the first pocket and communicating therewith via a plurality of openings for collecting drippings from the food article.

**20.** The appliance according to claim **17**, wherein said food holder further includes a spacer member for supporting the food article within the food holder but spaced from the bottom of the food holder, said spacer member including a U-shaped socket at its upper end for receiving the food article, and a curved leg at its lower end engageable with, and spacing the food article above the bottom of the food holder.

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